1: Gifford E-4,5 (1920-1921) 1929 OU9 Tonga OU9

the order of family right to the craft, was severely criticized and socially punished by his family and even by his neighbors. The informant was in doubt as to whether the confirming chief would override such an illogical choice.

If the male members in the family of a *tufunga* lack aptitude, ambition, or any other necessary quality, or show decided inferiority in comparison with someone outside the family, this outsider, following a presentation of gifts to the *tufunga* (from the applicant's family), may be chosen to succeed to the order. This appointee's sons then continue to carry on the particular *tufunga* tradition and practice.

All the people of a village contribute toward the building of the chief's house under the direction of a single *tufunga*.

Some living representatives of *tufunga* families in Lifuka Island, Haapai, are as follows:

Josiah Paluto, *tufunga langafale* and *tufunga lalava*, his father, Job Femuiaki, his grandfather and his great-grandfather were also *tufunga;* Ngauamo, *tufunga vaka;* Femuiaki, *tufunga langafale;* Mailau Fuopau, *tufungataomaka.*

According to a Vavau informant, carpenters were called the "Children of Tangaloa Tufunga," that is, "Tangaloa the Artisan." A tradition states that before the time of Ulukalala, the carpenters were driven from Vavau during a war and went to Fiji to settle and that there they built a fort, so strong that the Fijians could not take it. This brief snatch of legend suggests a sort of organization on the part of the carpenters, but at the present time there is nothing in the nature of a carpenters' guild.

Only one person in a family held the title which went with a trade. As usual, the title seems to have descended most frequently from the father to the eldest son. Thus the predecessor of Eke, a boat builder of the Hihifo district, Tongatabu, was his mother's father, who also was Eke—a title which is bestowed by the chief Ata. The present Eke had the title conferred upon him by the present Ata. Eke is of Samoan extraction and of matapule rank; in fact, the name Eke is a matapule name. An ancestor of the present Eke is believed to have come from Samoa in the time of Tohuia, the Samoan mother of Ngata, the first Tui Kanokupolu.

The father, paternal grandfather, and a great-grandfather of Fakauho, another house builder of the Hihifo district, all bore the same title and were all carpenters. The present Fakauho, popularly known as Fiso, had his title conferred upon him by the present Ata about 1910. Fakauho is also a stone mason and constructs stone burial vaults (*fonualoto*). Should the chief Ata want a house built, he orders the Fakauho to do the work. Fakauho's assistants are his relatives, but Ata orders commoners to help in the rough and heavy work.

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rough and heavy work. He feeds them with the best of foods. When the work is over, he makes a handsome present of fine mats and other objects to the chief carpenter. A carpenter, even if dissatisfied with the conditions, may not throw down his tools—as is done in Samoa. A carpenter may build houses for matapules and commoners as well as chiefs. Only rarely he builds a house for a commoner, and only when the commoner is so fortunate as to possess something suitable as a present. Most commoners erect their own humble dwellings. The matapules, however, invariably having plenty of worldly goods, can well afford to pay the carpenter.

Burial vaults made of six slabs of coral limestone forming a rectangular box are the work of stone masons called *tufunga taomaka*. Mariner limits the stone mason to the *mua* and *tua* classes but Fakauho, who is at the same time mason and carpenter, is a matapule—perhaps a modern exception.

Fishing

Communal fishing (*pola*) in Tonga is practiced on a large scale. In a seaside community a *toutai*, to whom the special name of *pulepola* (ruler of the *pola*) is applied, organizes the fishing. He gets a number of men (*kauleo*) to assist him in supplying of materials and constructing the apparatus. In a *pola* held near Nukualofa on February 12, 1921, about forty of these men directed the activities of more than a thousand people:

On February 9, the *kauleo* with their wives and children, headed by the *pulepola*, assembled at the appointed place and for two days made preparation. Before noon of February 12 the apparatus, including a huge fence of coconut leaves, was completed. Meantime all the countryside, men, women, and children, had gathered on the beach to take part in the fishing. The *pulepola*, the district chief, and the *kauleo* caught two baskets of fish which were sent to the Queen by two boys on horseback. After this tribute was made, everyone kept what he caught, even those who had taken no hand in the construction of the apparatus. The *kauleo* and the *pulepola* were well oiled, girded with good mats and *sisi* and wore flower garlands about the neck. The rest of the people were dressed in ordinary working clothes.

Each *tofia* (hereditary lands of a chief) had exclusive rights to the *pola* grounds (*tanungapola*) on its waterfront and any community fronting on the shore could at will construct *pola* on its waterfront. Inland communities did not take part, obtaining fish from seashore peoples of the same chiefly districts.

If the shore lines of a chief's territory did not possess the sandy bottom essential to the *pola* construction, he could seek permission to use a neighboring *tanungapola*. Should permission be granted, the chief of the *tofia*

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[For further information on structural stone work, see the various 34 Categories.]

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STONE CONSTRUCTION

KIND AND SOURCE OF MATERIALS

In building mounds, platforms, monuments, fortifications, walls, enclosures and miscellaneous structures, the ancient Tongans made large use of stone. The most common structures are masses of loose earth and gravel supported by retaining walls of both natural and dressed stones. Two kinds of stone were available, basalt and limestone. The basalt is on volcanic islands not conveniently near the larger, more densely populated coral islands; moreover, it is difficult to work with primitive tools. Though many native stories tell of *makahuna* (volcanic rock) brought from distant islands and extensively used, I saw only a few, small, undressed pieces of basalt forming part of the old structures. Limestone, however, is abundant, easily accessible, and presents varieties suitable for various purposes. The limestone forming the reef itself is massive, rough, compact, and without cleavage planes helpful to the mason. Though difficult to quarry, it possesses great strength and is the source of the thick long blocks needed for the largest structures. The kind of limestone commonly used (locally called "sandstone") consists of the lime sand of the beaches blown onto the shore and inland where it becomes consolidated into a stratified rock. Because it is composed of a series of superposed layers, it is easily quarried and broken into rectangular slabs suitable for retaining walls.

QUARRYING METHODS

Stone quarries are to be found at many places where suitable rock outcrops. Quarries of considerable extent were observed on the islands of Lifuka, Mango, Uiha, and Ualeva in the Haapai group, and on Motutapu and Pangaimotu in Tongatabu. The largest quarry seen is on the northeast shore of Motutapu Island, where a bed rock 50 yards in length has been exposed and intensively worked. The stone slabs obtained from the quarry were 0.7 foot to 1.5 feet in thickness. Among the largest intaglios marking the removal of slabs is one which measures 10.5 by 6.3 feet by 0.6 foot, another, 10 by 6 feet by 0.6 foot, and a third, 9 by 8 feet by 1 foot. On some slabs, quarrying had been begun but not completed. The information obtained from these remnants of unfinished work regarding the successive stages of operations coincides exactly with that gathered from living informants.

The procedure was as follows. An area of desired size and shape was marked out on the rock surface. Large axes (*toki lahi*), fashioned of basalt and finished with faces tapering abruptly away from a blunt edge, were then employed to cut a groove around this outlined area. This groove was carried

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STONE DRESSING AND EMBELLISHING

In the best of the Tongan platform structures the stones were roughly shaped to fit the ends of adjacent stones but were not finally dressed until permanently placed in the walls. Then, if they were too thick to conform with adjoining stones, they were carefully sized; rough places were smoothed away and the tops of the walls were reduced to a uniform height. There is ample evidence of this practice in the small flakes of stone scattered about the structures and in the fact that many stones become abruptly thicker below ground, the shoulder being as much as 6 inches wide. Thus the visible portions of the walls were shaped to exhibit smooth, continuous surfaces and contours, while the buried foundations were left with rough surfaces and broken contours.

No mortar was used in Tongan stone construction. In the rougher structures the undressed stones were placed one upon the other, retaining their positions solely by their own weight and by that of surrounding stones. In the slab walls, which consist of a single row of stones placed upright, each slab was buried for about half its length to insure a reasonable degree of permanency of position. The edges of the stones were laboriously smoothed to make the closest possible contact, the depth of foundation burial being depended upon to make such contacts lasting. The roots of great trees have forced many stones out of position, but the number of slabs undisturbed is remarkable. In some structures a rather half-hearted and experimental effort has been made to scarf or mortise corner stones. In the tomb of Telea (p. 52), corner stones have been given an L shape to prevent spreading.

Aside from a rather neat surface smoothing, which varies in different structures, little was done in the way of ornamental embellishing. On two sides of the tomb of Telea the top of the basal tier is admirably bevelled. Aside from this, the only attempt at decorating stone surfaces is in the incising of petroglyphs, simple geometrical designs, on stones of the remaining walls (p. 78). These rare decorated stones are situated so haphazardly in the structure that they add nothing to a decorative scheme and have therefore little esthetic value.

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STRUCTURAL FORMS

MOUNDS AND PLATFORMS

Although no Tongan mounds are constructed entirely of stone, many mounds of earth have sides faced with stone retaining walls. Most of the mounds take the form of a truncated cone with flat top and sloping sides. Several mounds might be described as foreshortened cylinders terminating in flat tops marked by a large, cylindrical central pit with retaining walls of stone. One mound observed resembles a truncated pyramid with four stone-faced sides, which slope rather abruptly towards the flat top.

The stonework of the truncated cones differs radically from that of the cylindrical mounds. Most of the cone-shaped mounds are surfaced with rough stones piled indiscriminately one upon the other—a sort of cyclopean masonry. In some of these mounds, and in one truncated pyramid, the stones are roughly rectangular slabs. In some of them this technique is marked by smooth stone fitting, the stones exactly shaped and sized to occupy a certain position and to produce a continuous, regular veneering. All of the cylindrical mounds observed are retained by walls constructed after one pattern and of similar materials; rough pieces of limestone are piled one upon the other in a vertical wall of uniform width.

Platforms are of two types; round and rectangular. The rectangular type includes single platforms and storied platforms, or stepped pyramids. All platforms whether single or storied, round or rectangular, are earth filled enclosures retained by walls of upright slabs in contact at adjoining edges. In some of the smaller structures, the slabs are natural flat pieces roughly broken about the edges and but indifferently fitted together. In most structures, however, the stones of the retaining walls are dressed and sized, producing a smooth, unbroken wall of continuously even height, and fairly even thickness.

The distinction between low mounds with flat tops and platforms may seem arbitrary and vague. It is recognized here because of a corresponding distinction made by the native descendants of those who built these structures. The Tongans almost invariably base their nomenclature upon purpose and use rather than upon form or appearance, and it so happens that the term *sia*, which like the English "mound" refers to small elevations both natural and artificial, is generally applied to structures made for certain uses, but is not used to designate the types here described as platforms. Of all the structures observed, only those classified by the natives as *sia* lack the upright slab retaining walls which characterize all other earth and stone structures.

The tops of some mounds and platforms were made accessible by roadways, or approaches, ascending gradually from the surrounding land—the

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length of the roadway being determined by the height of the structure. Most of these approaches were supported on either side by retaining walls, similar to the walls of the main structure. A few were paved with stone slabs or rough fragments of stone, or surfaced with gravel. Access to certain platforms was by means of low stone steps placed at certain points against the retaining walls. Where the low steps adjoin relatively high walls, they seem merely to have marked the proper place for mounting rather than to have afforded help in ascending the structure.

STONE HOUSE PARTS

Many ancient houses of the better class were supplied with a stone door sill, made or a single oblong, roughly blocked out hexahedron about a foot in width, which filled the base of the doorway to a height of somewhat less than a foot. Such stone sills appear in a few modern houses but it is probable that a wooden sill was always more common.

Stone house posts and rafters were seen in only one structure—a burial house situated on the top of a stone walled tomb on the island of Tongatabu. The fragments now remaining of these stone house parts are smoothly dressed and show rather elaborate end mortising (p. 38).

STONE WALLS AND MONUMENTS

Independent walls of stone are by no means common in Tonga, but are represented by several examples in fairly good condition. All these walls are built of undressed and irregularly shaped pieces of both reef limestone and "sandstone," of a size easily carried and handled.

Monumental stones form part of the retaining walls of many mounds and platforms. These are placed regularly to constitute a part of the wall and differ from the other wall elements only in their larger size. Usually they stand up abruptly, at or near a platform corner, to a height considerably greater than the average height of the wall.

Stelae of undressed basalt occur independent of other structures at certain places. The only one seen is in the town of Mua (p. 93), but two others are reported from the distant volcanic island of Niutoputapu. The great trilithon, Haamongaamaui (p. 63), situated in the eastern part of Tongatabu. stands out with paradoxical distinctness from all other Tongan structures, as well as from those of other Pacific islands. Not only is its shape unique, but the great size of the three dressed stones employed in the structure, and the deep mortising of the lintel piece into the uprights, render the work a surprising oddity as well as a worthy monument to Tongan ability and ingenuity in stone construction.

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172 34 the compass. Many of the undressed stones in the body of the platform are sufficiently large to require several strong men to move them. Most of the dressed surface slabs have been removed recently to build a wall about the Wesleyan church at Utagnake. The only large one left in place measures 5.2 feet in height, 2.7 feet in width and 0.7 foot in thickness.

172 34 333 This square structure with its sloping, slab-surfaced sides is a form of stone masonry not at all characteristic of Tongan work. Its whole character seems more in harmony with Fiji and I am inclined to believe that this is the foundation for some important building erected directly under Fijian influence, if not actually by Fijians.

172 34 2. Unnamed mound on the island of Mango, Haapai (fig. 16).

The mound is circular and flat topped, standing close to the beach at the west end of the village. It is immediately surrounded by a very shallow ditch or depression,

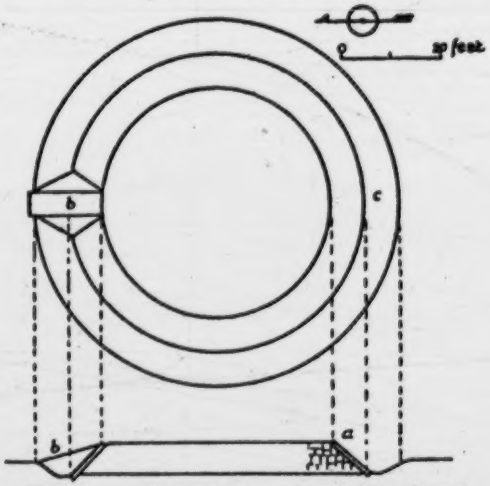

FIGURE 16.—Plan of unnamed mound, Mango Island, Haapai, height 5 feet, diameter at base 90 feet, diameter at top 70 feet: *a*, stone veneering on sides sloping about 25°; *b*, earth ramp ascending mound; *c*, moat 3 to 5 feet wide at base of mound.

crossed from the north by a fill of sand which is projected to constitute an inclined approach to the top of the mound. The sloping sides of the mound are faced with irregular flat slabs of coralline sandstone laid loosely, like tile.

172 34 173 [342] The structure is said to have been built as a house platform by Fijian warriors, brought to Mango by the Tongan king Ulukalala I, who is referred to by Captain Cook as Feenow (Finau). Whatever its original purpose, this structure is now used as a house mound, although entirely out of keeping with other Tongan *paepae*. It has certain strong Fijian features which seem

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172 764 16. Matamoana (Facing-the-sea) called also langi Talangaholova, between Tufamahina and the *api* Talangaholova, Tongatabu, Type A.

Matamoana has no distinctly outlined top but gradually descends on all sides from a gently convex center to the level of the surrounding land. Its maximum elevation is 11 feet and its diameter 40 feet.

Tradition says that a girl and a boy, brother and sister, whose names and exact lineage are forgotten, are buried here, but aside from small fragments of coral sandstone, which are scattered about the mound base, there is no surface indication of the vault.

17. Maluatonga (Cringing-Tonga) or Matuatonga (Ancient-Tonga), in Mua, Tongatapu, Type D.

The southwest retaining wall of Maluatonga is 84 feet long; the southeast wall, 87 feet. The continuous top surface of the wall averages 1.9 feet in height above the surrounding land level; the dressed stones comprising the retaining wall are 0.6 foot to 0.8 foot in width and average 3.5 feet in length. The wall includes three monumental stones. Of two at the southwest corner one said to bear the name Vaia, measures 7.8 feet by 4.6 feet, by 0.8 foot to 1 foot. The other said to be named Tuituiohu, after a Tuihaangata chieftain, measures 8.4 by 4.8 feet by 1 foot. These two corner stones overlap at their ends and are mortised into each other for a depth of 0.1 foot. The

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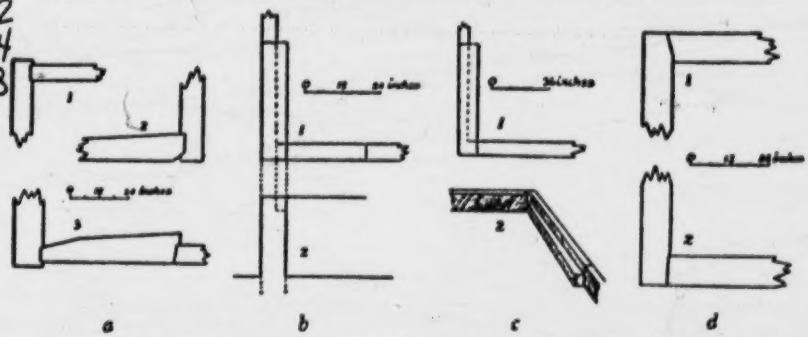

a *b* *c* *d*

FIGURE 26.—Details of stone work in langis: *a*, mortising of corner stones in langi Maluatonga—1, northwest corner; 2, southeast corner; 3, southwest corner—; *b*, southwest corner langi Olovehi—1, flat plan; 2, vertical plan—; *c*, corners in platform b, langi Nukulau—1, plan; 2, perspective—; *d*, corners in platform a, langi Nukulau —1, northwest corner; 2, southeast corner; 3, southwest corner.

172 764 third large stone in the northwest corner monument has fallen from its original upright position. It is 6.5 feet long, 4 feet wide and 0.7 foot thick. Apparently its foot was buried about 0.9 foot in the ground. The mound material originally contained within the retaining walls has largely escaped through wash and seepage, giving the wall where intact the appearance of an enclosure. There is no indication of a vault.

[333] The skill in masonry exhibited in Maluatonga is relatively high. Not only are the stones exceptionally smooth and sharply outlined in all inter-surface angles, but three of the four lapped corners, those to the northwest, southwest and southeast, are fashioned to have the lapped stone mortised into the overlapping one (fig. 26, *a*).

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In this manner was the Haamonga built. All the common men of Heketa and many men from the outlying districts of Tongatabu were assembled. The stones, of a variety called *okeha* (coral limestone), were cut out from the cliff face on the shoreline just north of the site selected for the structure. This is the kind of stone that forms the bedrock for all this part of the island. When the three great stones had been shaped, they were dragged over wooden skids, by means of heavy ropes and the combined muscular power of many men, to the construction site. The two pits where the columns were to stand were then dug. There followed the erecting of a perpendicular retaining wall of trees and brush, situated closely parallel to the line of the two excavations. This wall constituted the vertical front of an earthen mound or inclined plane of a height sufficient to serve in the following manner. The two uprights were dragged over skids, endwise and prone on edge, up the slope of the artificial incline. Besides the wooden skids and ropes, the implements employed included blocking wedges and levers, to be used in emergencies. At the top of the incline the stones were projected over the edge of the vertical retaining wall until nicely balanced, and then carefully directed to fall endwise, while guided by ropes, into the pits prepared for them. This done, the lintel was transported up the incline in the same manner, but with the lateral edge foremost, and directed to drop into the mortises in the tops of the upright pieces. Then the earthen incline was removed, leaving the trilithon in position. A large irregular pile of earth in the near neighborhood of the monument is said to be the material removed in leveling the construction mound.

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Tamale's account of origin and construction is so detailed and logical, coming as it does from a very old man who neither speaks nor reads any language other than his own and who is highly respected by natives and Europeans alike as an authority on the traditional history of his district, that it must be accepted as a weighty part of the available evidence. [115]

The name Haamongaamaui (*haamonga*, the burden carried on a carrying-stick called *haamo*; *a*, of; Maui, a god and culture hero) is probably derived from the myth according to which Maui Kisikisi brought the trilithon from Uvea to Tonga, carrying it on his shoulders. It has been argued that this myth indicates that the stones constituting the structure were brought from Uvea. While such a feat may have been possible, a preponderance of the available evidence stands against it. It is a common thing in Tonga to find mythological origins ascribed to things of known historical origin. Furthermore, limestone employed in the structure is identical with the country rock immediately surrounding the monument, while Uvea is basicly volcanic in formation.

It is hard to see just how the trilithon would tend to decrease the possibility of dissension between the two sons of Tuitatui without including a belief in sympathetic magic. The two columns were named after the two sons and it is possible that the belief existed that as long as the two representations of the brothers were united by the lintel-piece, there could be no breaking of brotherly relations. According to Gifford (11) Tuitatui reigned in the early part of the eleventh century.

Prince Tungi believes that the Haamonga was erected for playing a game called *kopai kolo*. The existing structure may have been used in playing [345]

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of his ancestors, and that the langi might have been built before Telea's time. This, however, seems improbable. Ten langis occur in the list following that of Telea. There are exactly ten Tui Tonga named in genealogies following Telea, but at least one of these is buried, according to tradition, on another island and the last, Laufilitonga, was buried in historic times in one of the other langi. Here again the discrepancy is not fatal to the accuracy of the list. One positive and one probable mistake in the list, however, with other detail that does not check up too well, serve to a certain extent to discredit the entire list as an accurate chronological account.

There is an apparent conflict between the Uhatafi and the Tungi records. According to Uhatafi, Tokemoana and Tuipulotu were buried in the langi Tuofefafa. According to Tungi, Tokemoana was buried in the langi Tafaua and Tuipulotu in Tuoteau. However, inasmuch as there were two kings sharing the name Tuipulotu and as it is Tuipulotu II, according to several records, who is buried in Tuoteau, and as Tokemoana may have been a family name shared alike by many succeeding family heads, the contradiction can not be positively accepted as discrediting either of the records.

DEVELOPMENT OF THE LANGI

There are many reasons for doubting the independent development of the langi type of structure in Tonga. The abrupt appearance of highly developed stone masonry during the reign of Tuitatui may indicate an introduction of the art into Tonga at that particular time. So highly developed an art is not likely to be born within a primitive society in one generation. It requires time and experimentation to develop skilled craftsmen who could construct a Haamonga or a Heketa.

There is a native story which recounts the arrival in Tonga, during the reign of Tuitatui, of a great foreign chieftain, presumably from Fiji. His boat was the largest and finest which the Tongans had ever seen, and built of *fehi* (*Afzelia bijuga*) wood, previously unknown to them. From the wood of this vessel was built a *fata* (a sun shelter in the form of a wall-less house with a loft open at either end). The name Fatafehi, has been in common use in the Tui Tonga family ever since. This foreign chieftain seems to have made a great impression upon the Tongans and to have introduced several new customs and culture elements, but no mention is made of his introducing the art of stone masonry. While considering the possibility of foreign influences, it may be well to note that, according to all available evidence, the best of Samoan stone structures seem to have been built by the Tongans rather than by the Samoans—a conclusion supported by both Tongan and Samoan traditions.

Skill in stone dressing could have been acquired gradually through a long period of vault construction, thus leaving no surface evidence of a period of

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experimentation preceding the first appearance of surface stonework. But granting this possibility, it is hard to believe that the art of stone mortising, exemplified in both the Haamonga and the stone house beams on Heketa, could have been so fully developed without previous trials. Also a simple type of terracing might be expected as the first example of surface stonework rather than the comparatively elaborate three-terraced structure represented in langi Heketa.

The leap from other Mua langis to Paepaeotelea is not so abrupt as first appearances might suggest. Many of the Mua langis show bits of detail, such as smooth surfacing, the use of large thick stones, and close stone fitting, that are only slightly improved upon in Telea's langi, but where these features occur as occasional and scattered bits of detail in the other structures, this one langi shows a combined and uniform adoption of them all, and at their best.

The only new outstanding features in Paepaeotelea are: (a) the bevelling of the superior surfaces of the stone terraces, and (b) the use of L-shaped stones at the corners. It may be said that the solid stone nature of the terraces constitutes a third unique feature, but a careful survey of other langis shows a not infrequent tendency towards this. Such construction is patently impossible where stratified sedimentary rock is used as the building material. The numerous horizontal planes of natural cleavage present in such rock necessarily results in narrow slabs. But the tendency prevailed, as illustrated in all the large langis, to make these slabs as thick as possible, and in one langi a single stone has a width sufficient to extend more than half way across the width of a terrace. The use of nonstratified stone in Paepaeotelea made it possible to give the terrace walls any width desired, and the desired width would seem to have been the maximum width.

Likewise, it would be impossible to cut L-shaped cornerstones from the available stratified rock. On the other hand, experience must have taught the builders that L-corners are highly desirable as cleft corners have a tendency to spread under the weight of loose water-soaked soil and the outward pressure of large trees growing upon the structures. It was not entirely a new idea; its use in the construction of composite wooden boats (17) had undoubtedly long been in vogue. The use of nonstratified limestone made it possible to apply the well known principle to stone construction.

Bevelling was a decorative method well understood by boat builders. It is not strange that it should have been adopted sooner or later by stone masons. The use of L-shaped cornerstones made the pleasing effects of bevelling more prominent, and supplies a possible reason for its adoption on the occasion of erecting this particular structure.

A discussion of the probability of an independent invention of the stone vault used in Tonga must wait for a fuller knowledge of stone vaults else-

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172 173 paratively recent times, are thus supported by facts resulting from the work of the expedition.

Investigations shed not a little light upon certain elements of primitive 172 culture that are now irrevocably lost to the ethnologist: the sources of build- 333 ing stone and the methods of its quarrying; the occurrence of quarry sites on islands far removed from any building sites, supporting the tradition of the transportation by boat of large stones over considerable water distances; the detail of stone structural work and the technical methods involved in its execution; the decorative element in Tongan culture as expressed in stone.

172 643 The great stone structures of Tonga definitely reflect the strongly centralized socio-political organization of its primitive inhabitants. The existence of a king, holding unlimited sway over a united Tonga, was an historical fact at the time of the discovery of the archipelago by Europeans, and the long rule of a single dynasty of monarchs is clearly pictured in its earlier prime by native tradition. Archaeological support is hardly needed to substantiate the despotic nature of the powers of the Tui Tonga, and yet its contribution of evidence is by no means the least persuasive from the available list of data.

172 333 The building of the truely colossal stone structures which occur so numerously in the little kingdom involved a tremendous amount of labor, no small degree of skill, and a considerable expenditure of time. Long years of training, well organized effort, and absolute control of labor under a directing head were essential factors necessary to enable the successful construction of one of the larger langis.

172 333 643 The power of religious fervor, if properly organized under the control of a constructive leader, could account for such laborious creations, but most Tongan monuments were apparently constructed for the benefit of individuals in a single noble family, whose position in society, if religious, was primarily political. Here we see the hand of an exalted lord building for his own glory, rather than the zeal of an inspired populace erecting temples to its gods. It was the power vested in the Tui Tonga that made it possible for him to ordain the training of men from youth in the arts of masonry, and to draft all the manual labor required for any necessary duration of time. No local chieftain, with but the freewill assistance of the men included in the village or district constituency, could be expected to attain success in such a project.

In this connection, it is interesting to note that the probable development and ensuing decline of the stone-tomb culture seems to have coincided with a parallel rise and fall in the power of the Tui Tonga. It is the powerful Tui Tatui whose name is first associated with stone construction by native tradition, and the last few Tui Tonga on the list, weakened by a series of successful rebellions, made no important contributions to stone work.

7: McKern A-4,5 (1920-1921) 1929 0U9 Tonga 0U9

172 333 171

The problem of the origin of stone construction in Tonga is one of special interest because of a possible relationship between the masonry of Tonga and of other provinces in Oceania. Of structures in dressed stone which are found in many south Pacific islands, and of which even fairly accurate descriptions are available, those of Fiji seem to be closest in type to those of Tonga. I do not mean to include all Tongan and all Fijian structures in such a comparison, but the platform tomb with slab vault occurs in both Tonga and Fiji, as do less important structures and a great many technical processes and resultant effects involved in the stone mason's art. At present there is no way of determining whether the art of masonry was carried from Tonga to Fiji, or contrawise, although it is highly probable that each profited from the ideas of the other during later stages of development. A strong cultural connection cannot be denied. The abrupt, initial occurrence of stone masonry, in a highly developed stage, during the reign of Tui Tatui, as indicated by native tradition, suggests an introduction at that time of the art into Tonga from some outside source; the same traditions definitely describe a Fijian intrusion at that time. A study of the stone structures of Tonga tends to support the general truth of these traditions to a remarkable degree.

There is little similarity between the dressed stone structures of Samoa, such as they exist, and those of either Tonga or Fiji, in spite of the close cultural and racial ties connecting Tonga and Samoa. A few, rather superior Samoan structures were probably built by the Tongans during a period of Tongan political dominance over her larger relative. Excluding these structures from consideration, Samoan masonry was peculiarly different from the more highly developed stone craft of Tonga. A basic majority of the culture traits of Tonga appear to have had their immediate origin in Samoa, which was certainly settled long before Tonga. Tongan and Samoan traditions both name Samoa as the ancestral home of the Tongans. From this it seems reasonably clear that Tongan masonry had a source different from that of Tongan basic culture.

172 171 764 [333]

The burial mound, as it occurs in Tonga, is not a characteristic feature of Samoa. In Fiji it occurs as a common form of burial place. The mound appears to have been the prototype from which the platform and pyramid tombs were developed. This, again, indicates Fiji as the probable source of Tongan stone work.

172 171 333 [501]

It may be argued that the art of masonry was more highly developed in Tonga than in Fiji, and is more likely to have originated in the country of its higher development. However, such a conclusion does not necessarily follow. The Tongans are historically known to have discarded their own large sailing vessel, the *tungiaki*, and to have adopted the superior Fijian *ndrua*. In the course of one generation the Tongans were not only building *kalia*, a *ndrua* type of vessel superior to the Fijian product, but were actually

7: McKern A-4,5 (1920-1921) 1929 0U9 Tonga 0U9

172 being employed by the Fijians to build vessels (17). A similar specializa-
171 tion in stone work, under the encouragement of a favorable political state,
333 might in the same way have produced a technique superior to that of the
501 place from which the craft was introduced.

The importance of Fijian influence over Tongan culture is apparent in
172 aspects other than that of masonry. The fortifications of Tonga were less
171 like those of Samoa than like those of Fiji. Tongan pottery is certainly
[712] Fijian in origin and basic type; Samoa had no pottery. Tongan burial methods
[323] were much more like those of Fiji than of Samoa. The Tongan language
[764] has borrowed a considerable number of Fijian terms. This list of Fijian
[192] elements intrusively present in the culture of Tonga might be carried to a tedious length.

There is nothing extraordinary in the tendency of Tonga to drift, cul-
172 turally, farther away from Samoa and closer to Fiji. The Samoans were
171 relatively peaceful; the Fijians were warlike. Tonga, possibly under the
648 influence of its political solidarity, became a power at war, and the mingled admiration and sympathy of its young men of social prominence went to Fiji rather than to Samoa. Fiji became the war college of Tonga, whose young men were sent to this distant seat of interminable quarrels and petty wars to acquire experience in the war parties of Fijian chieftains. Aside from this, Samoa was a land of people and things similar to those of Tonga; Fiji was a land of strange people and strange customs. The spirit of curiosity and adventure, so apparent in the Tongan, attracted him to the new and strange rather than to the more familiar and less exciting. He felt the lure
[501] of the unfamiliar, the enchantment of the strange land. The fact that Fiji possessed a type of sailing vessel far superior to any in either Tonga or Samoa, and the necessity for Tonga, with its hundred and more scattered islands, to survive as a political unit only through a mastery of sea craft, may have had an important bearing on the close cultural relationship which sprang up between the two countries.

54: Cook G,T-5 (1777) 1967 OU9 Tonga OU9

till it is the length they intend it. The hollowed side of the log of wood is to receive the ends of the unworked cloth, so that they may be out of the way of the work women. They have of this cloth of different degrees of f[i]neness, according to the bark on which it is made; the finest is made of the Chinese paper Mulberry tree.[1] The Courser sort of which they make very large piec[e]s does not receive the impression of any platen, but is made on the log only.[2] Of the finer sort, they have some that is striped, chequered and other patterns of different colours, but how these Colours are laid on I can not say as I never saw any of this sort made.[3] All these sorts will resist water for some time and that which has the strongest glaze will resist it the longest.

The next considerable Manufacture is matting in which they exceed all the places I have been at both in texture and beauty. Many of those which are made of the bark of the Poerou[4] so far exceed those they have at Otaheite, that they are not a bad article to carry their by way of trade. They also excell in making baskets, some are exceedingly neat and they have of them of many different patterns. It is almost needless to say that they make ropes and lines of all sorts, Nets for fishing, fish-hooks and all manner of fishing geer with the greatest facility. But in what I think they most excell in point of workmanship, is in the building their Canoes, for an account of which and the manner of Navigating them I refer to the narrative of my last voyage.[5]

Masonry Masonry I have seen none but in the walls that inclose their Morais and their is nothing extraordinary in them but the size of the Stones, some of which are ten or twelve feet in length, four or five in breadth and one or more in thickness.[6] I examined several of these stones and found them composed of Coral sand and small Marine shells, and therefore concluded that they had been hewn from of the surface of the coral rocks. But even to do this with thier tools is no little work for before they got Iron they had only adze[s] of stone, a chissel of bone; a coral stone and sand and the Skin

[1] *Broussonetia papyrifera*, Tahitian Aute, Tongan Hiapo. The dyed cloth thus described is properly called *ngatu*, not *tapa* as in the other islands.

[2] It was made from the bark of the young breadfruit tree, Mei (Tahitian Uru). This plain cloth the Tongans called *tapa*; it was, says Mariner (II, p. 206), 'seldom worn, but is chiefly used for various purposes at funerals'.

[3] With a small stick used as a brush, as is still done.

[4] This was the Tahitian name, Purau, for the common *Hibiscus tiliaceus*. The Tongan name was Fau.

[5] II, pp. 263–5, 447–8.

[6] Cook's misuse of the word 'morai' (*mala'e*) has already been noted. The reader interested in the remarkable structure of *fa'itoka* and *langi* can do no better than refer to the extended account in McKern's *Archaeology of Tonga*, pp. 30 ff.

333 412 237 of a sting-ray fited upon a piece of wood, served as a polisher; for small work they make use of Sharks teeth and Shells.

Tillage The Instruments for *Tillage*, in which they may be said to vie with Europeans, are nothing more than Pickets, or Stakes of different lengths according to the depth they have to dig, they are flaten'd and sharpened to a edge at one end and the largest have a short piece fastened transversely a little above it, for pressing it into the ground with the foot. With these, though they are not more than from two to four inches broad, they dig and plant ground of many acres in extent.

721 *War and Weapons* The art of War is not unknown to these people though perhaps they practise it as little as any nation upon earth; for except their occasional disputes with Fidge[e], before mentioned, they seem to have no Enimies round them. Their 713 Weapons are clubs of defferent sorts, in the making, or rather Ornamenting of which they spend much time, Spears and darts; they have 411 531 bows and arrows but they seemed to be designed only for amusement and not as a Military weapon.[1]

642 *Goverment* Of the nature of Goverment we know no more than the general out line, a subordination is established among them that resembles the feudal system; but of its subdivisions of the Constituent parts and in what manner connected to form one body politic I confess my self totally ignorant.[2] Some have told us that the power of the King is unlimited and that the life and property of the Subject is at his disposal; but the few circumstances that fell under our observation, made more against than for a dispotic Goverment though we saw instances of both, and some that clearly shewed that the lower order of people have no property but at the will of their 643 masters.[3] On the other hand *Marriwaggy*, Old *Toobough* and *Feenough*, 634 acted each like petty Sovereigns and frequently thwarted the meas-

[643] [565] [421]

[223] [565] [517]

[1] They shot pigeons with them, as an aristocratic diversion.

[2] Not without reason, considering the complicated nature of the Tongan power-structure. I do not annotate some of the sentences that follow, in which Cook repeats statements already annotated, however erroneous they may be.

[3] '. . . we saw instances, where present Passion seem'd to be their only guide, & where had they killd the Objects of their wrath they woud have been amenable neither to justice nor to a superior; but as the common people by no means appear dispirited or any way broken by harsh or cruel treatment, It seems pretty certain that the mildness & benevolence of their masters, insures them against an ill use of their Authority. . . . Upon the whole the Friendly Islanders have the appearance of enjoying most of the Advantages aris'ing from a regular Government, few even surpass them in the great order they observe on all Occasions, in their ready compliance with the Commands of their Superiors, & the great harmony which subsists amongst all ranks; & none in the general sweetness & mildness of their tempers. We see many things worthy of imitation, few of blame; wou'd to God they cou'd say the same of us, but we have left them an incurable disorder which will for ever embitter their quiet & happy lives, & make them curse the hour they ever saw us.'—King.

/139/

342 where, considering the buildings in the seaport of Neiafu, the old-
198 style Tongan houses may be regarded as mostly self-built makeshifts in a light construction. (367)

367. See p. 193.

342 The dissemination of "European-type construction" (wood-corrugated
197 metal-rectangular buildings) need not necessarily--on the basis of the
463 aforementioned figures--lead to an increase in house-building specialization; some skillful Tongans, even as "laymen," know how to build such types of houses. (368)

368. All European-style houses are, incidentally, today built by Tongans without guidance by whites. The natives can also build a European shed on concrete bases and even know how to make concrete tiles by themselves (from the necessary imported material).

● [333]

342 Moreover, we learn that money which circulates rather freely in the
436 Archipelago has heretofore played no great role in the employment of
463 house-builders. The efforts of specialists and helpers are mainly
465 acknowledged, in the old way, simply with good food (earth oven)
331 during the building. (369)

369. Even in the "modern" work of erecting European-style structures.

342 The building material for the construction of a house with the ancient
435 Tongan ground plan and coconut-palm covering can still, as in old
198 times, be procured without financial expenditure, so that the entire process can be carried through without an outlay of cash, (370)

370. If the "owner" does not have enough pigs and products from his plantation at his disposal, he will of course have an indirect cash outlay in buying flour, sugar, corned beef, etc., in order to feed the builders.

and only with the cost of good food for all workers; this applies to a remote settlement ('Uiha) as well as to a village near a seaport (Fungamisi).

/144 cont./

342 with wooden tenons. Two of these round beams form the framework of
331 one narrow side of the roof; as in old times, they are set on the ends
335 of the main horizontal beams (375)
177
(284)

375. That is, the horizontal beams resting on the four posts.

and fastened to them with coconut-fiber lashing. Rafters and roof
(412) laths are tied over them and nailed, and here, too, strips and corrugated sheet metal--laboriously cut with sheet-iron shears--are nailed on.

It is only now, when the roof is finished, that the men apply themselves to the walls which are built in a quite "modern" form.
(333) They pour a cement foundation all around the house (according to the ground plan) in which screws are inserted. To these they screw beams which form the basis for a wall framework to be built between the foundation and the edge of the roof. On this framework they nail the wall boards, allowing for window- and door- openings. Then they take out the four posts which are so important for the ancient Tongan house (which here were set up only temporarily) and replace them with supports extending obliquely from the base of the walls to the joints. The roof now rests partly on the walls--a very considerable change for Tonga.

342 The rest of the work is slowly carried out, for the general
331 enthusiasm has abated, especially since the rations have become scarcer (after the boss's last beef has been consumed). Because Christmas preparations are now beginning in the village, only a few willing workers appear at the building site. They cover the floor of the house with sand, paint the outside of the new building with light blue oil paint, attach a gutter and start to make the doors, until the building material gives out and the work stops. However, the